

Combining a CTR With a Plate-Haptic Toric IOL

This technique can improve refractive results.

BY WILLIAM F. WILEY, MD

To treat astigmatism effectively, the surgeon must diagnose, treat, and then maintain the effect of treatment long term. Surgeons choose to treat astigmatism at the time of cataract surgery primarily in two ways: toric IOLs and limbal relaxing incisions (LRIs). The main advantage that lenses have over LRIs is that surgeons generally need not worry about corneal healing and varying their nomograms to ensure proper treatment with the former. Moreover, whereas the predictability, accuracy, and precision of LRIs decrease as higher amounts of astigmatism are treated, that is not the case with toric IOLs. The main disadvantages of toric lenses are their cost, requirement for precise positioning, and need to maintain that position over time. Small dislocations or rotations of the IOL can alter its refractive effect. I developed the IOlock technique to keep plate-haptic toric lenses in position.

THE TECHNIQUE

After removing the cataract in my normal fashion, I carefully create a centered, circular capsulorhexis of approximately 5.5 to 6 mm. Next, I perform intraoperative aberrometry (ORA System; WaveTec Vision) to help determine the amount of astigmatism, spherical power, and axis for the toric IOL. I then inject viscoelastic into the capsular bag, followed by the plate-haptic toric IOL

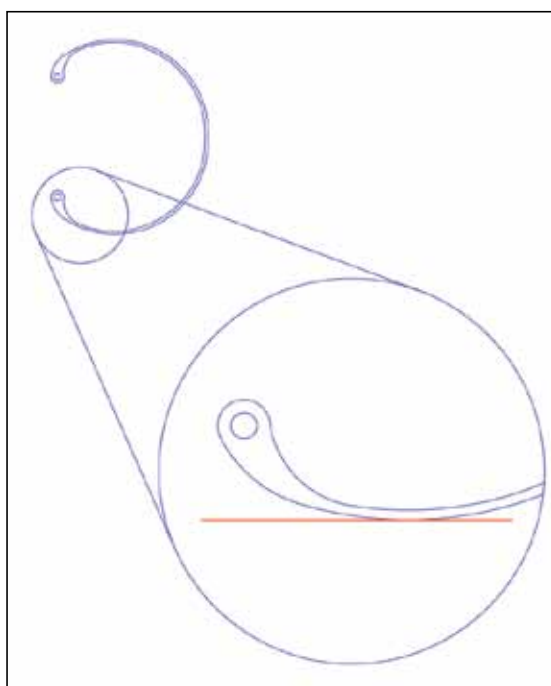


Figure 1. According to Dr. Wiley, Ophtec's CTR has a unique "ski tip" feature that allows him to dial in the device without snagging the capsule.

(STAAR Toric IOL; STAAR Surgical Company) and a 12-mm capsular tension ring (CTR; Ophtec BV). I dial the lens into position and remove the viscoelastic. At the end of the case, I leave the eye at physiologic pressure (IOP = 15-25 mm Hg).

WHY A CTR?

A toric lens may rotate for a number of reasons. An oblong or asymmetric bag may encourage the IOL to rest off axis. Compared with acrylic IOLs, silicone lenses may have less friction with the bag, resulting in easier inadvertent slips of the lens prior to final healing. By enforcing the symmetry of the capsular bag, a CTR may help an IOL remain well positioned in the short term. By helping

to control capsular contraction and forces that could shift or rotate the lens, a CTR may maintain the IOL's fixation in the long term as well. I favor Ophtec's CTR owing to its ease of insertion and durability (Figure 1).

RESEARCH RESULTS

Since I began to use the IOlock technique 16 months ago, I have reduced the number of rotations of the STAAR Toric IOL that require surgical correction from 3% (series of 128 eyes) to zero (series of 75 eyes).

In a retrospective analysis of a single-surgeon series, I compared my results with the IOlock technique using the STAAR Toric IOL versus my results using the AcrySof

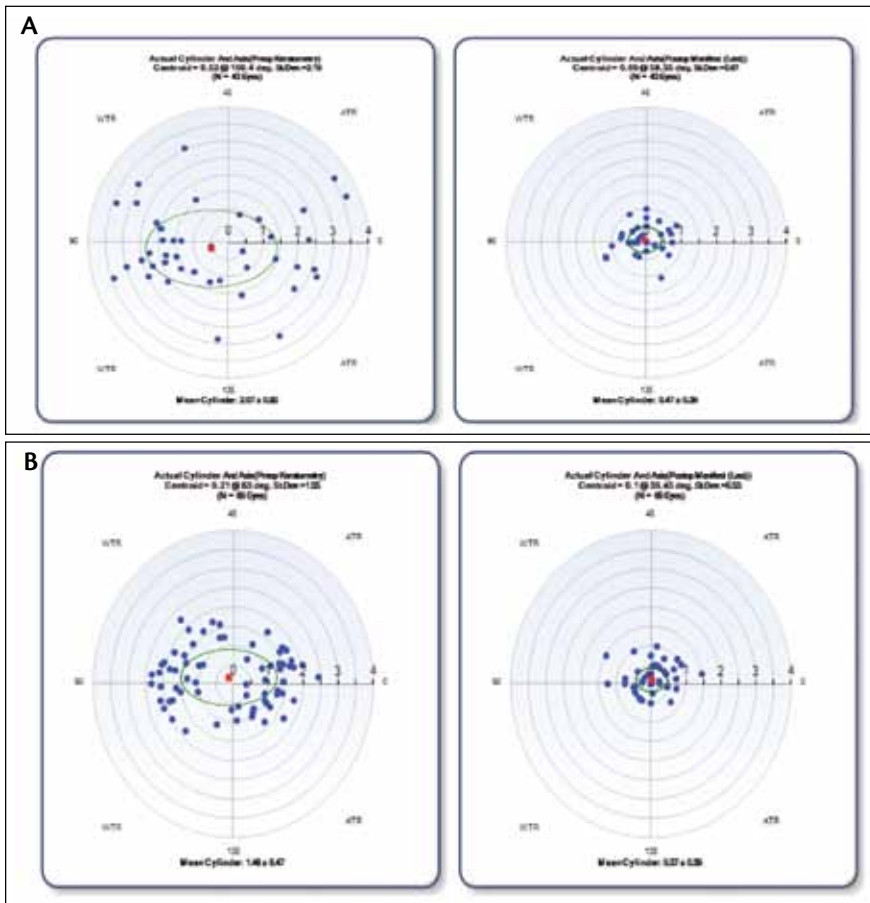


Figure 2. Dr. Wiley's results with the IOLock technique in terms of pre- and postoperative keratometric astigmatism and postoperative manifest refractive cylinder (A). His results with the AcrySof Toric IOL in terms of preoperative keratometric astigmatism and postoperative manifest cylinder (B).

Toric IOL (Alcon Laboratories, Inc.) without the IOLock technique. The mean preoperative keratometric cylinder for the STAAR group ($n = 43$ eyes) was $+2.07 \pm 0.82$ D and 1.48 ± 0.47 D for the AcrySof group ($n = 69$ eyes). The postoperative manifest cylinder measured 0.48 ± 0.39 D in the STAAR group and 0.38 ± 0.39 D in the AcrySof group. The amount of postoperative cylinder was similar in the two groups, although the amount of preoperative cylinder was higher in the STAAR group (Figure 2). These unpublished data represent a consecutive series of lenses implanted between January 1, 2011, and December 27, 2012. No long-term results are available at this time, and I have not tabulated my refractive results with the STAAR Toric IOL before my use of a CTR.

DISCUSSION

The main advantage the AcrySof Toric IOL's C-loop design has over the plate-haptic design of the STAAR

Toric IOL is a lower incidence of macrorotations that require surgical intervention. With traditional techniques for its implantation, the STAAR Toric lens requires surgical intervention in at least 3% to 4% of cases.^{1,2} Those statistics have prompted many surgeons not to use the lens. In my experience, a CTR appears to address this problem by decreasing the incidence of macrorotations with the STAAR Toric IOL. Moreover, I would argue that the plate-haptic design offers advantages. One is the ease with which I can adjust the lens in a clockwise and counterclockwise direction based on intraoperative aberrometry. Another is the IOL's lower cost, even when combined with a CTR, compared with the AcrySof Toric IOL.

Finally, although the AcrySof Toric IOL has a low percentage of macrorotations, it does undergo microrotations.^{3,4} The chief period in which they occur is between 1 week and 1 month postoperatively. Although I have not studied the matter, it is possible that a CTR could help avert these microrotations. ■

Editor's note: using a CTR to lock an IOL in position is an off-label use of the CTR.

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